

5G Spectrum Frontiers

The Next Great Unknown Experiment On Our Children



On July 14, 2016, the [FCC voted](#) to approve Spectrum Frontiers, making the U.S. the first country in the world to open up higher-frequency millimeter wave spectrum for the development of 5G fifth-generation wireless cellular technology. Health, safety and environmental evaluations to understand the impact on humans, wildlife and the environment have not been done.

The FCC was flooded with comments in opposition to 5G. Please see here some examples of those comments.

[FCC FactSheet on 5G](#)

“Why is Spectrum Frontiers 5G so especially outrageous to the public?

It would greatly extend FCC’s current policy of the MANDATORY IRRADIATION OF THE PUBLIC without adequate prior study of the potential health impact and assurance of safety. It would IRRADIATE EVERYONE, including the most vulnerable to harm from radiofrequency radiation: pregnant women, unborn children, young children, teenagers, men of reproductive age, the elderly, the disabled, and the chronically ill.”[Dr. Ronald M. Powell Ph.D. Comment to the FCC](#)

“One primary criticism of how the FCC functions is that they time-average exposures rather than regulate for peak exposures, which is the most important biological metric. Smart meters, for instance, during the duty cycle, put out a peak burst of RF that has been found to exceed FCC limits by orders of magnitude. (Cell phone manufacturers tell consumers not to hold a functioning cell phone against the body or it too may exceed FCC limits.) Yet that peak is averaged away into the duty cycle’s lower exposures and essentially disappears into what is

deemed “safe.” That is like saying that a bullet passing through flesh is “safe” because it comes out the other side and moves more slowly by the time it passes through bone, blood and tissue. The FCC standards are based on a dose-metry model of how to make communications systems work with the least amount of transmitted power necessary, not on true biological models regarding the consequences to living systems in the path of technology. The proposed 5G network will contain peak exposures of its own that will also be lost in the background noise of how FCC regulates.” [The Berkshire-Litchfield Environmental Council Comments](#)

“In summary, we need to better understand ... how to address these growing and poorly understood radiation impacts to migratory birds, bees, bats, and myriad other wildlife. At present, given industry and agency intransigence ... massive amounts of money being spent to prevent addressing impacts from non-thermal radiation — not unlike the battles over tobacco and smoking — and a lack of significant, dedicated and reliable funding to advance independent field studies, ... we are left with few options. Currently, other than to proceed using the precautionary approach and keep emissions as low as reasonably achievable, we are at loggerheads in advancing meaningful guidelines, policies and regulations that address non-thermal effects....” [‘Federally-protected wildlife species are in danger’ Dr. Manville's 2016 Wildlife Memo](#)

“The FCC’s RF standards were adopted 20 years ago. Many scientists believe these standards are obsolete because they do not protect the population from established, non-thermal risks from RF radiation exposure. Thus, to ensure public health and safety, the FCC should commission an independent review of the biologic and health research to determine whether the RF standards should be modified before allowing additional spectrum to be used for new commercial applications.” [Dr. Joel Moskowitz Comment to the FCC](#)

“Human sweat ducts transmit and perhaps also receive electromagnetic waves that reflect the person’s emotional state, as an extension of the sympathetic nervous system that innervates sweat ducts.” Computer simulations have demonstrated that sweat glands concentrate sub-terahertz waves in human skin. Humans could sense these waves as heat. The use of sub-terahertz (Millimeter wave) communications technology (cellphones, Wi Fi, antennas) could cause humans to percept physical pain via nociceptors.” [Dr. Yael Steins Comments to the FCC](#)

“The recent US [NIEHS government funded study](#) of wireless radiation found significantly greater rates of rare tumors of the brain and heart in rats. The French government has recently reviewed evidence on wireless radiation and has concluded that there is need to evaluate all wireless devices for their impact on children’s health and immediately minimize exposures to children. [ANSES 2016 Report](#)

In light of these and other developments it is imperative that 5G not be introduced widely into commerce at this time.”[Dr. Devra Davis FCC Comments](#)

“Studies, including the National Toxicology Program studies, have shown wireless to be a dangerous technology and 5G, according to Chairman Wheeler’s own comments, is an infrastructure intensive technology. So, invest in safe, wired infrastructure instead of spending a lot of money to saturate entire communities with hazardous radiation. The “cool” factor is not worth the peril. Don’t vote to unleash a dangerous environmental pollutant on your friends, family, and, indeed, the whole country. Vote to protect your family, friends, and the country – vote “no” on Spectrum Frontiers. Be on the right side of history.”[Comments by Electrical Pollution](#)

“As far back as 1997, top public health scientists called halt to the PCS phone system in the basis of the biological plausibility of harm its pulsed centimeter microwave radiation would do to human health. (See attachments.) Alongside that petition stood an official letter to the National Academy of Sciences from Harvard School of Public Health Professor and then Environmental Health Department Chair Joseph Brain ScD stating that the heavy density of antennas required even in residential areas would be harm human health. But the FCC did not listen, and instead plunged our society deep into the predictable ADD/ADHD, dementias, headaches, sleeplessness, cardiac and blood-pressure problems, birth defects and cancer that pulse-modulated microwave radiation is known to cause. And now, the far more intense density of 5G antennas literally everywhere would produce, if permitted, even more pronounced disability and debility, along with environmental devastation.” [Stop 5G harm to all living beings: The Science is Conclusive by Susan Clark](#)

“Neither were the American people consulted about whether we would want to sell our health and well being in exchange for a gain of a few milliseconds in Internet speed, and an intrusive, cumbersome “Internet of Everything” that would require us to accept cancer causing, radiation-emitting devices on every home or lamppost.” [Maryland Smartmeter Awareness Comment to the FCC](#)

“Are you or your children having pain in your head/ear and/or tingling in your hands when using a cell phone? If yes, then you have developed Electro-Sensitivity. According to numerous surveys done by leading institutions up to 2006, at least 10% of people already suffer from symptoms of electromagnetic sensitivity/intolerance, a condition that develops with accumulated exposure to wireless radiation.”["We are the Evidence' Comments by Dafna Tachover](#)

“Because the frequency used in 5G will be much higher than what has been used for 2G, 3G and 4G, transmission distances will be much shorter and the number of small cell sites required will

be SEVERAL TIMES greater than the 308,000 macro cell towers already in place across the country.”Angela Tsiang

NEWS AND RESOURCES

[July 14, 2016 FCC Meeting Video Spectrum Frontiers vote.](#)

[TV Technology: FCC Opens Higher Frequencies to Phone Companies](#)

[Public News Service: FCC Votes Today on Opening Additional Wireless Spectrum for 5G](#)

[O'Dwyers: Wi-Fi Health Advocate Asks FCC to Test 5G Before Rollout](#)

[Regulators Pave Way For Speedy Next-Generation 5G Networks](#)

[Biological Considerations for Setting Exposure limits Above 6 GHz Marvin C. Ziskin, M.D.](#)

[SlideShare: 5G: From Research to Standardization \(what, how, when\)](#)

[GSMA ANALYSIS Understanding 5G: Perspectives on future technological advancements in mobile](#)

[Industry Funded Presentation: Mobile Manufacturers Forum Workshop on 5G June 2016](#)

[5 G Introduction: EMF Exposure Limits and Compliance Assessment of Future Wireless Devices Above 6 GHz](#)

[Kenneth R. Foster Department of Bioengineering](#)

[ICNIRP's Draft HF Guidelines by Eric van Rongen, Chairman ICNIRP](#)

[IEEE ICES Exposure Limits Above 6 GHz by C-K. Chou, TC95 Chairman](#)

[Biological Considerations For Setting Exposure Limits Above 6 GHz by Marvin C. Ziskin, Emeritus Professor of Radiology & Medical Physics, Temple University Medical School, Philadelphia, PA, USA](#)

[Review Of Studies Of Thermal Response To Skin Above 6 GHz by Kenneth R. Foster, Department of Bioengineering, University of Pennsylvania](#)

[Exposure Assessment Of Wireless Devices Frequencies Above 6 GHz by Leeor Alon, NYU School of Medicine, NYU Langone Medical Center, NYU Center for Biological Imaging](#)

[PROPEL 5G – PROcedures and techniques for Proving compliance to Exposure Limits of 5G wireless devices by Benoit Derat, ART-Fi SAS \(A Mobile Manufacturers Forum sponsored project\)](#)

[EMF Exposure Limits and Compliance Assessment for Wireless Devices Operating at Frequencies above 6 GHz by Mark Douglas, IT'IS](#)